REMARKS

Claims 1-16 are pending in this application.

Specification and Claims

Minor changes have been made to the specification to place it in better form for U.S. practice.

Further, minor changes have been made to the pending claims, without affecting the scope thereof, to place them in better form for U.S. practice.

Double Patenting

Claims 1-16 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 15-29 of copending application No. 11/629,351.

Since this is a provisional double patenting rejection, Applicants prefer to respond to this rejection when this rejection becomes the only issue remaining in the present application.

Claim Rejections - 35 U.S.C. § 102/103

(a) Claims 1-3, 8, 9, and 12-15 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over Schlager et al. (US 2003/0164308). This rejection is respectfully traversed.

Claim 1 has been amended to claim:

> wherein the control unit is configured to, in a period from one voltage polarity reversal to a next voltage polarity reversal, operate the drive circuit, from when the polarity of the voltage applied between the electrode is reversed until a predetermined period elapses, in a first current mode in which a value of a current flowing between the electrodes equals a first value, and operates the drive circuit thereafter in a second current

mode in which a value of the current flowing between the electrodes equals a second current value smaller than the first current value.

In the Office Action, the Examiner states "[T] reference fails to disclose the function recitation of the current modes having different values. It has been well settled that such functional recitation are given little or no patentable weight in device claims."

Applicants submit that according to claim 1 of the present application, in the period after the polarities of the electrodes are reversed one time until they are reversed the next time (i.e., in each periods T1 to T5 shown in Fig. 4), switching is made from the first current mode to the second current mode (the second value) is made smaller than the current value in the first current mode (the first value). This stabilizes the metal ion elution after the initial period of voltage application has passed after the polarity reversal of the voltage applied between the electrodes, and eliminates a problem of shorter electrode life and a problem of too high elution concentration of metal ions. This offers the advantage, unique to the present invention, that the metal ion elution can be performed efficiently and stably over a long period of time (see paragraphs [0015] and [0016] of the specification), which advantage makes the present invention patentable.

By contrast, Schlager does not disclose or suggest switching from a first current mode to a second current mode after one electrode polarity reversal until the next.

Further, the Examiner alleges that "the claims are anticipated since the control circuit of Schlager is capable of accomplishing the function recited in the claims," and also that "[I]n the event the functional recitations provide a structural limitation, the Schlager reference further teaches the modification to control the metal concentration based upon the water being treated by varying the current and/or flow rate," by referring to paragraph [0057] of the reference.

Applicants respectfully disagree that the control circuit of Schlager is capable of accomplishing the claimed function of the present invention at least because Schlager does not disclose or suggest that the control circuit is "configured to" (i.e., programmed to) accomplish the claimed function.

What Schlager discloses in paragraph [0057] is simply varying a current. Accordingly a modification that a person skilled in the art may conceive from what Schalger discloses in paragraph [0057] is not "varying of a current that involves switching from a first current mode to a second current mode during a period after one electrode polarity reversal takes place until the next does" but "a varying of a current involving keeping the current value constant at least during a period after one electrode polarity reversal takes place until the next does so that the current value is varied with that period taken as a minimal unit."

Further, Schlager states discloses in paragraph [0057]:

> Current may then be converted to current density based on the area of the electrodes used in the test.

Therefore, Schlager does not disclose or suggest "in a period from one voltage polarity reversal to a next voltage polarity reversal, operate the drive circuit, from when the polarity of the voltage applied between the electrode is reversed until a predetermined period elapses, in a first current mode in which a value of a current flowing between the electrodes equals a first value, and operates the drive circuit thereafter in a second current mode in which a value of the current flowing between the electrodes equals a second current value smaller than the first current value," as recited in claim 1.

Claims 2, 3, 8, 9, and 12-15, variously dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(b) Claims 4-7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Schlager, and further in view of Hayes (USP 6,929,740). This rejection is respectfully traversed.

Claims 4-7, variously dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(c) Claims 10-11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Schlager, and further in view of Grundler (USP 4,769,119). This rejection is respectfully traversed.

Claims 10 and 11, indirectly dependent on claim 1, are allowable at least for their dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

(d) Claim 16 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Schlager, and further in view of Ooe et al. (US 2006/0130533). This rejection is respectfully traversed.

Claim 6, indirectly dependent on claim 1, is allowable at least for its dependency on claim 1.

The Examiner is respectfully requested to reconsider and withdraw this rejection.

Conclusion

Accordingly, in view of the above amendments and remarks, reconsideration of the rejections and objections, and allowance of the pending claims are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Maki Hatsumi, Registration No. 40417 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: June 15, 2010

Respectfully submitted,

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Attachment: Substitute Specification (Marked-up Copy and Clean Copy)